

ABSTRACT

A gain-clamped semiconductor optical amplifier having a horizontal lasing structure in which an oscillation direction of a laser is different from an amplification direction of a signal, and a method for manufacturing the gain-clamped semiconductor optical amplifier. The gain-clamped semiconductor optical amplifier includes a gain layer for amplifying an optical signal. A Bragg lattice layer is formed on both sides of the gain layer along a longitudinal direction of the gain layer for enabling light having a corresponding wavelength to resonate in a direction vertical to the longitudinal direction of the gain layer. A passive light waveguide restrains light resonating between lattices of the Bragg lattice layer. An electrode supplies current to the gain layer, and a current-blocking layer prevents current from flowing to an area other than the gain layer.